NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

SEDIMENT BASIN

(no.)
CODE 350

DEFINITION

A basin constructed to collect and store debris or sediment.

PURPOSE

To preserve the capacity of reservoirs, ditches, canals, diversions, waterways, and streams; to prevent undesirable deposition on bottom lands and developed areas; to trap sediment originating from construction sites; and to reduce or abate pollution by providing basins for deposition and storage of silt, sand, gravel, stone, agricultural wastes, and other detritus.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where physical conditions or land ownership preclude treatment of a sediment source by the installation of erosion control measures to keep soil and other material in place, or where a sediment basin offers the most practical solution to the problem.

Scope

This standard applies to the installation of all basins where the primary purpose is to trap and store waterborne sediment and debris.

CRITERIA

The capacity of the sediment basin shall equal the volume of sediment expected to be trapped at the site during the planned useful life of the basin or the structures or improvements it is designed to protect. If it is determined that periodic removal of sediment will be practicable, the capacity may be proportionately reduced.

The design of dams, spillways, and drainage facilities shall be in accordance with the standards for Ponds (378) and Grade Stabilization Structures (410) or according to the requirements in TR-60, as appropriate for the class and kind of structure being considered.

Temporary basins having drainage areas of 5 acres or less and a total embankment height of 5 feet or less may be designed with less conservative criteria if conditions warrant. The embankment shall have a minimum top width of 4 feet and side slopes of 2:1 or flatter. An outlet shall be provided of earth, pipe, stone, or other devices adequate to keep the sediment in the basin and to handle the 10-year frequency, 24-hour discharge without failure or significant erosion.

Temporary basins and permanent sediment basins designed according to the standard for **Pond** (378) may have their spillways or outlet pipes designed by routing the design storm through the storage basin using the storage-discharge curves shown in the Engineering Field Manual (EFM), Chapter 8. The maximum discharge capacity allowable using these curves is 1.00 cfs per acre. If the storage discharge curves in Chapter 8 of the EFM are not used, the spillways shall be designed by routing the design storm through the storage basin using reservoir routing procedures in Chapter 17 of the National Engineering Handbook, Section 4 (NEH-4), Hydrology.

Provisions are to be made for draining sediment pools if necessary for safety and vector control. Fencing and other safety measures shall be installed as necessary to

protect the public from floodwater and soft sediment. Due consideration shall be given to good visual resource management.

PLANNING CONSIDERATIONS FOR WATER QUANTITY AND QUALITY

Water Quantity

- Effects on the water budget, especially volumes and rates of runoff, infiltration, evaporation, deep percolation, and ground water recharge.
- Effects on downstream flows and aquifers that would affect other water uses and users.
- Effects on volume of discharge flow on the environmental, social and economic conditions.
- Effects on the water table downstream and the results of changes of vegetative growth.

Water Quality

- Effects on erosion, movement of sediment, pathogens, and soluble and sediment-attached substances.
- Effects on the visual quality of onsite and downstream water resources.
- Effects of construction and early establishment of protective vegetation on the surface and ground water.Effects on wetlands and water-related wildlife habitats.

CONSTRUCTION PLANS

Plans for sediment basins shall be in accordance with this standard. Plans should include a plan layout of the embankment and reservoir, profile of the embankment, cross sections of the embankment, profile of the emergency spillway, cross section of the emergency spillway, dimensions and material requirements of the principal spillway, and details and material requirements of the principal spillway riser.

For construction of sediment basins within the scope of the Standard for the practice **Pond** (378) and the Specification for the practice **Pond** (378) may be furnished as a construction specification.

For sediment basins within the scope of TR-60, construction shall be in accordance with the guide specifications contained in the National Engineering Handbook, Section 20.